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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,407	08/07/2003	Masaki Aoshima	890050.436	3159
500 7590 08/12/2008 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104				
EXAMINER ANGEBRANDT, MARTIN J				
ART UNIT		PAPER NUMBER		
1795				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/637,407

Applicant(s)

AOSHIMA ET AL.

Examiner

Martin J. Angebrandt

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7, 13 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7, 13 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. The response of the applicant has been read and given careful consideration. The copending applications have either been abandoned or the claims have diverged from those under prosecution, thereby obviating the double patenting rejections.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-7,13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 and Kinoshita et al. JP 2000-285509 (machine translation provided)

Kobayashi et al. JP 62-204442 teaches an optical recording media comprising a recording layer consisting of at least two kinds of phase-change films having different composition wherein the first recording layer is of Si, Te, or the like and the second recording material is Au, Ag, Ge or the like. When the materials are recorded, the recording layers are alloyed. Recording layers (41, 42) are provided between dielectric layers (3, 5) wherein a protective layer (6) is opposite the substrate (2). With regard to the Applicants' capabilities of properties under specific irradiation, it is the Examiner's assertion is that the same compounds will react the same way (or similarly) under the same circumstances and thus the materials of Kobayashi anticipate these irradiations. While these properties are not specified in the English language abstract, it is further the Examiner's assertion that it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the materials under near-field conditions, thereby satisfying

these requirements. Examiner notes that with regard to claims 9-10 the additional dielectric layer furthest from the substrate acts as a “protective layer” as the dielectric layer can act as a barrier from damage from oxygen, mechanical contact and the like (further teaching found in example 4). The bilayer is 100 nm thick, the lower and upper dielectric layers are silicon dioxide and 100 nm thick. (example 4). The recording bilayers can be Si/Au, Si/Ag or Te/Ge

Kinoshita et al. JP 2000-285509 teach an alloying recording medium comprising a substrate, a partially reflective layer (2), a dielectric layer (3), a recording bilayer (104,105), a second dielectric layer (5). The first recording layer can be Au, Ag, Cu, Pt, Pd, Sb, Te, In, Sn, Zn or the like [0005,0015]. The second recording layer is Ge [0015].

It would have been obvious to modify the medium exemplified by Kobayashi et al. JP 62-204442 using a Te/Ge recording bilayer and discussed with respect to structure shown in figure 2 by replacing the Te with Sn to form a Sn/Ge bilayer based upon the disclosure of equivalence by Kinoshita et al. JP 2000-285509 in forming alloying bilayers with Ge with a reasonable expectation of forming a useful optical recording medium. Alternatively, it would have been obvious to modify the media exemplified with respect to figure 1 by replacing the Au or Ag with Sn based upon the disclosure of equivalence at [0005] and to add a polymeric protective layer as taught by Kobayashi et al. JP 62-204442 atop the dielectric layer with a reasonable expectation of providing further protection for the recording medium.

The examiner agrees that Kobayashi et al. JP 62-204442 does not anticipate the claimed invention. The applicant argues that the media of Kobayashi et al. JP 62-204442 are phase change media. while the alloyed areas may also be able to undergo a phase change, the description of the alloying of the Si/Au (see translation at page 1, at line 6 of translated text),

Ag/Si (see translation at page 2/line 4) and Te/Ge (page 2/lines 29-31) layers is clear from the translation. Therefore the mode of operation of the media is the same as both media describe the formation of alloyed mark areas. The examiner notes that translation provided by the applicant is incomplete. The claims are to the medium in the bilayer state, Which is the initial state of either medium and as both references teach the alloying (the mode of operation) and are in the optical recording medium art, they are analogous and there is a reasonable expectation of success, irrespective of the any subsequent utility of the medium of Kobayashi et al. JP 62-204442. The applicant's argument also fails to address the expectation of being able to form a recording mark in Te/Ge systems based upon the teachings of Kinoshita et al. JP 2000-285509 or any advantages of adding a protective layer to the embodiments rendered obvious by Kinoshita et al. JP 2000-285509 based upon the teachings of Kobayashi et al. JP 62-204442.

4. Claims 5-6,13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 and Lee et al. '819 (cited by applicant in IDS of 1/16/04)

Lee et al. '819 teaches bilayer optical recording media which are alloyed under the influence of laser light as shown in figures 4 and 5. The media may have a protective layer as shown in figure 1 (18, passivating layer see col. 2.lines 32-36) and figure 3 (38, passivation layer see col 3, lines 15-21) . The first layer may be Al, Au, Pb, Sn and the second layer may be Al, Au, Pb, Sn, Ge or Si. (claim 3 and 1/45-59). Ge/Al, and Au/Si are exemplified.

It would have been obvious to modify the medium exemplified by Kobayashi et al. JP 62-204442 using a Ag/Si recording bilayer and discussed with respect to structure shown in figure 2 by replacing the Ag with Sn to form a Sn/Si bilayer based upon the disclosure of equivalence by Lee et al. '819 in forming alloying bilayers with Ge with a reasonable expectation of forming a

useful optical recording medium. Alternatively it would have been obvious to modify the medium resulting medium by using a Sn/Ge recording bilayer based upon the disclosure of equivalence by Lee et al. '819 in forming alloying bilayers with Ge with a reasonable expectation of forming a useful optical recording medium.

This is a new ground of rejection.

5. Claims 5-7,13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 and Kinoshita et al. JP 2000-285509 (machine translation provided), in view of Morimoto et al. '345

Morimoto et al. '345 teaches that the reflective layer may be on the same side of the recording film as the substrate if topside recording is to be used and on the opposite side of the recording films from the substrate if the recording is to take place through the substrate (6:42-65). The dielectric layers are disclosed as providing improvements in the stability and sensitivity of the overall device (7:42-8:12). The prevention of direct contact with the recording layer is further disclosed (7:1-10). The thickness of the dielectric layers may be 10 to 500 nm (7:51-8/12).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the medium rendered obvious by Kobayashi et al. JP 62-204442 by adding a reflective layer as taught by Kinoshita et al. JP 2000-285509 (machine translation provided) and Morimoto et al. '345 to allow reflective readout of the medium. Further it would have been obvious to use Sn in place of Si, to form an Sn/Ge bilayer as taught by Kinoshita et al. JP 2000-285509.

The applicant argues that the references are not combinable. This is without merit and all the references are within the optical recording media field and in particular, Kobayashi et al. JP

62-204442 and Kinoshita et al. JP 2000-285509 are both directed to alloying type optical recording media. The citation of Morimoto et al. '345 is merely to establish that the presence of the reflective layer control the side from which the recording layers can be accessed and this teachings would apply to any type of recording medium. The principle of operation is not modified by adding Kinoshita et al. JP 2000-285509 based upon the separation of the layers in Kobayashi et al. JP 62-204442 and the overriding principle is that of the recording layer is accessed by the laser beam and heated by it. The rejection stands for the reasons above.

The arguments raised by the applicant have been addressed above.

6. Claims 5-7,13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. JP 62-204442 and Kinoshita et al. JP 2000-285509 (machine translation provided), in view of Morimoto et al. '345, further in view of Fukano et al. '073.

Fukano et al. '860 teach the use of carbon barrier layers between alloying/reaction recording bilayers (2/30-40, 3/5-20).

In addition to the basis above, it would have been obvious to one skilled in the art to modify the media resulting from the combination of Kobayashi et al. JP 62-204442 with Kinoshita et al. JP 2000-285509 and Morimoto et al. '345 by adding a carbon interlayer as taught by Fukano et al. '860 with a reasonable expectation of forming a useful alloying optical recording medium.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As discussed above Kobayashi et

al. JP 62-204442 teaches the dielectric layers (3,5) on both sides of the recording bilayer (4₁, 4₂) as illustrated in figure 2. Figure 3 shows multiple alternating layers in laminates. As discussed above, the claims do not recite alloying of the two recording layers and so this line of arguments is directed to an unrecited feature. The rejection stands for the reasons above.

The examiner agrees that the primary component language precludes the use of Okawa et al. JP 62-028941 in the rejection. The use of barrier layer between alloying layers is known in the art (see Gambino 3,959,799, cited by the applicant 1/25/05) and the effect is well known irrespective of what two layers are being separated. Clearly, the result would be increased stability, which is a benefit reasonably recognized as desirable in optical recording. The rejection as modified stands.

7. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. JP 2000-285509 or Lee et al. '819, in view of Wilkinson '261.

Wilkinson et al. '261 teaches the use of a laser to melt an Al metal layer to form a recorded area.(2/28-48). The use of a HeCd laser is disclosed. (6/12-30). The thickness of the overlayers are optimized to maximize laser wavelength absorption.

It would have been obvious to one skilled in the art to modify the process of recording used with the media rendered obvious by Kinoshita et al. JP 2000-285509 or Lee et al. '819 by using other laser wavelengths which are old and well known for their use with inorganic bilayer optical recording media, Such as the 442 nm emission of the HeCd laser with a reasonable expectation of successfully recording in the alloying bilayers based upon its use to melt other metals (Al)

The applicant has misread the rejection. The rejection is over (Kinoshita et al. JP 2000-285509 **or** Lee et al. '819), in view of Wilkinson '261 and does not involve Kobayashi et al. JP 62-204442. There is no need for Kobayashi as the other layers that this rejection was relied upon for the teachings of are not required by these claims, specifically dielectrics on both sides in combination with a protective layer. The principle of the invention is not changed, the laser light is absorbed by the metal and heating occurs in both cases. In the case of Wilkinson et al. '261, the laser can be used at an intensity such that the heating results in ablation. The process of this is disclosed in Lee et al. '819 as having some disadvantages (1/20-37) and so one skilled in the art would be aware that a lower intensity could be used in alloying, than is used in ablation processes. The examiner believes these references to be sufficiently analogous that they are combinable and there is a reasonable expectation of successfully being able to alloy the bilayers of over Kinoshita et al. JP 2000-285509 **or** Lee et al. '819 using other laser which are old and well known in the art for marking metallic optical recording layers, such as the HeCd, which operates at 442 nm, taught by Wilkinson et al. '261. The rejection stands.

8. Kobayashi et al. JP 62-204442 or Rii et al. JP 58-220794, in view of Wilkinson '261, further in view of Fukano et al. '073.

In addition to the basis above, it would have been obvious to one skilled in the art to modify the media used in the process of recording rendered obvious by the combination of **either** (Kobayashi et al. JP 62-204442 **or** Rii et al. JP 58-220794) with Wilkinson '261 adding a carbon interlayer as taught by Fukano et al. '860 with a reasonable expectation of forming a useful alloying optical recording medium.

The examiner relies upon the response above as no further arguments were directed at this rejection.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795

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Primary Examiner
Art Unit 1795

08/6/2008